Dibromochloropropane

CAS #96-12-8
Swiss CD-1 mice, at 0.0, 25.0, 50.0, and 100.0 mg/kg by gavage
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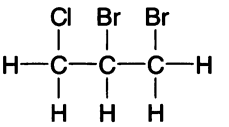
NTIS #PB85118644



Dibromochloropropane (DBCP), a pesticide that was widely used and still contaminates groundwater supplies in agricultural areas, was tested because of the known toxicity in rats and relative paucity of data in mice. DBCP was an early RACB study using Swiss CD-1 mice (Morrissey et al., Fundam Appl Toxicol 13:747–777 [1989]). Data on food and water consumption's, body weights, and clinical signs during a 2-week dose-range-finding study (Task 1) were used to set exposure concentrations for the Task 2 continuous cohabitation study at 25.0, 50.0, and 100.0 mg/kg by gavage in corn oil.

In the F_0 animals, four females, two females, two females, and three females and one male died in the control through high dose groups, respectively. The deaths were not attributed to DBCP exposure.

In the low and high dose groups, there was a 10 and 8% decrease, respectively, in the number of litters per pair. However, there was no change in the number of pups per litter, pup viability, or pup weight adjusted for litter size. There were no treatment-related reductions in F_0 mouse body weight.

In the absence of a change in pup parameters, no Task 3 was conducted and the control and high dose mice were reared for second generation evaluation. Body weights between mice in these two groups were not different at weaning or at cohabitation. In the Task 4 F_1 mating trial, controls and high dose DBCP mice delivered the same number of litters per group, pups per litter, and proportion viable pups; adjusted pup body weight was not affected by DBCP.

After the F_2 litters were delivered and evaluated, the F_1 adults were killed and necropsied. In the high dose treated males, there was a 16% increase in relative liver weight, and a decrease of 8 and 20% in relative epididymis and prostate weights, respectively. There were no differences between the groups in sperm end points. DBCP treatment increased female relative liver weight by 6%; vaginal cytology was not performed.

This study found that dibromochloropropane produced minor effects (fewer litters per F_0 pair, and reduced epididymis and prostate weights in F_1 mice) concomitant with minor increases in liver weight and no change in body weight. These changes are relatively small compared to effects seen in rats and probably represent a significant species difference in response.

Summary: NTP Reproductive Assessment by Continuous Breeding Study.

NTIS#: **PB85118644**
Chemical: **Dibromochloropropane**
CAS#: **96-12-8**
Mode of exposure: **Gavage**
Species/strain: **Swiss CD-1 mice**

F_0 generation — Dose concentration →	25.0 mg/kg	50.0 mg/kg	100.0 mg/kg
General toxicity	Male, female	Male, female	Male, female
Body weight	—, —	—, —	—, —
Kidney weight[a]	•	•	•
Liver weight[a]	•	•	•
Mortality	—, —	—, —	—, —
Feed consumption	•	•	•
Water consumption	•	•	•
Clinical signs	—, —	—, —	—, —
Reproductive toxicity			
$\bar{x}$ litters/pair	↓	—	↓
# live pups/litter; pup wt./litter	—, —	—, —	—, —
Cumulative days to litter	—	—	—
Absolute testis, epididymis weight[a]	•	•	•
Sex accessory gland weight[a] (prostate, seminal vesicle)	•	•	•
Epidid. sperm parameters (#, motility, morphology)	•	•	•
Estrous cycle length	•	•	—

Determination of affected sex (crossover)	Male	Female	Both
Dose level	•	•	•

F_1 generation — Dose concentration →	25.0 mg/kg	50.0 mg/kg	100.0 mg/kg
General toxicity	Male, female	Male, female	Male, female
Pup growth to weaning	•	•	—, —
Mortality	•	•	—, —
Adult body weight	•	•	—, —
Kidney weight[a]	•	•	•
Liver weight[a]	•	•	↑, ↑
Feed consumption	•	•	•
Water consumption	•	•	•
Clinical signs	•	•	—, —
Reproductive toxicity			
Fertility index	•	•	—
# live pups/litter; pup wt./litter	•	•	—, —
Absolute testis, epididymis weight[a]	•	•	—, ↓
Sex accessory gland weight[a] (prostate, seminal vesicle)	•	•	↓, —
Epidid. sperm parameters (#, motility, morphology)	•	•	—, —, —
Estrous cycle length	•	•	•

Summary information	
Affected sex?	Unclear
Study confounders:	None
F_1 more sensitive than F_0?	No
Postnatal toxicity:	No

Legend: —, no change; •, no observation; ↑ or ↓, statistically significant change ($p<0.05$); —, —, no change in males or females. [a]Adjusted for body weight.